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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,402

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Graeme Huntley

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Edwards Vacuum, Inc.

2041 MISSION COLLEGE BOULEVARD

SUITE 260

SANTA CLARA, CA 95054

EXAMINER

ZOLLINGER, NATHAN C

ART UNIT

PAPER NUMBER

3746

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,402	<b>Applicant(s)</b> HUNTLEY ET AL.	
	<b>Examiner</b> NATHAN ZOLLINGER	<b>Art Unit</b> 3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060926</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

**Detailed Action**

***Specification***

Claim 33 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 recites the limitation "ignition sources." There is insufficient antecedent basis for this limitation in the claim. As claim 7, to which claim 20 depends, only claims an "ignition source" examiner will assume that claim 20 also limits its scope to a single ignition source.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Bonnell et al. (US 4,007,715).

**Claim 1:** Bonnell discloses a vacuum pump (Fig. 9) comprising a continuous ignition source (41) for igniting fuel (col. 5, lines 12-15; col. 6, lines 20-25) within a pumped fluid to regulate the concentration of the fuel in fluid exhaust from the pump.

**Claim 2:** Bonnell also discloses a pump wherein the continuous ignition source is an electric discharge device (41).

**Claim 3:** Bonnell also discloses a pump wherein the continuous ignition source is a spark plug (41).

**Claim 16:** Bonnell also discloses a method of treating a fluid containing a fuel, the method comprising conveying the fluid to a vacuum pump and, within the pump, igniting the fuel to regulate the concentration of the fuel in fluid exhaust from the pump (col. 5, lines 5-15; col. 6, lines 20-25).

Claims 1-3 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Foster (US 2,993,639).

**Claim 1:** Foster discloses a vacuum pump (Fig. 1) comprising a continuous ignition source (19) for igniting fuel (col. 1, lines 60-65) within a pumped fluid to regulate the concentration of the fuel in fluid exhaust from the pump.

**Claim 2:** Foster also discloses a pump wherein the continuous ignition source is an electric discharge device (19).

**Claim 3:** Foster also discloses a pump wherein the continuous ignition source is a spark plug (19).

**Claim 16:** Foster also discloses a method of treating a fluid containing a fuel, the method comprising conveying the fluid to a vacuum pump and, within the pump, igniting the fuel to regulate the concentration of the fuel in fluid exhaust from the pump (col. 1, lines 60-70).

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Jones (US 20040112308).

**Claim 1:** Jones discloses a vacuum pump (Fig. 2) comprising a continuous ignition source (26) for igniting fuel (carried through 22) within a pumped fluid to regulate the concentration of the fuel in fluid exhaust from the pump.

Claims 1, 5-8, 10-11, 13-16, 17, 20, 22-23, 26-27, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Bailey et al. (US 20050147509).

**Claim 1:** Bailey discloses a vacuum pump (Fig. 1, collective group of 111, 116, 121, 126 and 140) comprising a continuous ignition source (paragraph 15) for igniting fuel (paragraph 15) within a pumped fluid to regulate the concentration of the fuel in fluid exhaust from the pump.

**Claim 5:** Bailey also discloses a pump wherein the continuous ignition source is a plasma (paragraph 15).

**Claim 6:** Bailey also discloses a pump comprising a multi-stage vacuum pump (Fig. 1, 111 and 140) and the continuous ignition source (131) is located between adjacent stages of the pump (paragraph 17).

**Claim 7:** Bailey also discloses a multi-stage vacuum pump (Fig. 1, collective group of 111, 116, 121, 126 and 140) comprising, between adjacent stages of the pump, a continuous ignition source (131, paragraphs 15 and 17) for igniting a fuel within a pumped fluid.

**Claim 8:** Bailey also discloses a pump wherein the continuous ignition source is located within a combustion chamber (130).

**Claim 10:** Bailey also discloses a pump wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar (paragraph 26).

**Claim 16:** Bailey also discloses a method of treating a fluid containing a fuel, the method comprising conveying the fluid to a vacuum pump and, within the pump, igniting the fuel to regulate the concentration of the fuel in fluid exhaust from the pump (Figs. 1-2; paragraphs 13, 15 and 17).

**Claim 17:** Bailey also discloses a pump wherein the continuous ignition source is located within a combustion chamber (130).

**Claim 20:** Bailey also discloses a pump wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar (paragraph 26).

**Claims 11, 14, 22-23 and 27:** Bailey discloses, between stages of a pump, a dry scrubber of the thermal oxidation type which would add oxidant and fuel (Fig. 1, 131, paragraph 15). Inherently, then, Bailey also discloses means for injecting into the pump

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a fluid stream comprising an oxidant for assisting in igniting the fuel since oxidant cannot be conveyed into the dry scrubber but for an injection means.

**Claim 13:** Bailey also discloses a pump wherein the injected fluid stream also comprises a fuel for increasing the likelihood of ignition occurring within the pump (paragraph 15).

**Claim 26:** Bailey also discloses a pump wherein the means for injecting is arranged to inject the fluid stream between adjacent stages of the pump (Fig. 1).

**Claim 15 and 29:** Bailey also discloses a pump wherein the fluid stream is injected into the combustion chamber (130).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 9, 12, 18-19, 21, 24-25 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. (US 20050147509) in view of Glawion (US 5,548,862).

**Claim 4:** Bailey discloses the limitations of claim 1, discussed previously. However, Bailey does not disclose a pump wherein the continuous ignition source is a heated filament. Glawion teaches a continuous ignition source which is a heated filament (3). It would be obvious to employ a heated filament as taught by Glawion into

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the pump of Bailey in order to allow for a greater surface area to contact the passing gases which would improve combustion.

**Claim 9 and 18-19:** Bailey also discloses the limitations of claims 6-8, discussed previously. However, Bailey does not disclose a pump comprising a plurality of continuous ignition sources. Glawion teaches a plurality of continuous ignition sources (Fig. 1, 3). It would be obvious to employ a plurality of continuous ignition sources as taught by Glawion into the pump of Bailey in order to increase the likelihood of ignition of passing gases and thereby improve combustion.

**Claims 12 and 28:** Bailey also discloses the limitations of claims 11 and 27, discussed previously. However, Bailey does not disclose a pump wherein the oxidant is oxygen. Glawion teaches using oxygen (col. 3, lines 28-31). It would be obvious to employ oxygen as taught by Glawion into the pump of Bailey in order to assist in the combustion process.

**Claim 21:** Bailey and Glawion teach the limitations of claim 9, discussed previously. Bailey also discloses a pump wherein the pressure of pumped fluid at the ignition sources is in the range from 50 to 950 mbar (paragraph 26).

**Claim 24 and 31:** Bailey and Glawion teach the limitations of claim 12 and 28, discussed previously. Bailey also discloses a pump wherein the injected fluid stream also comprises a fuel for increasing the likelihood of ignition occurring within the pump (paragraph 15).



**Claims 25 and 32-33:** Bailey and Glawion teach the limitations of claim 12 and 31, discussed previously. Bailey also discloses a pump wherein the means for injecting is arranged to inject the fluid stream between adjacent stages of the pump (Fig. 1).

**Claim 30:** Bailey and Glawion teach the limitations of claim 28, discussed previously. Bailey also discloses a pump wherein the fluid stream is injected into the combustion chamber (130).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See accompanying form PTO-892 Notice of References Cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN ZOLLINGER whose telephone number is 571-270-7815. The examiner can normally be reached on Monday - Thursday, 9 a.m. - 4 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Z./  
Examiner, Art Unit 3746

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746